Amendments to the Specification:

Please replace paragraph at p. 1, line 30 to p.2, line 9 with the following amended paragraph:

Saturated mixtures exist at temperatures and pressures at which liquid and vapor phases coexist. The temperatures and pressures at which the liquid and vapor phases coexist lie under the "vapor bubble" (i.e., saturation lines) on a phase diagram. A representative phase diagram for water is shown in Fig. 1. The collection of points known as the saturated liquid line and the collections of points known as the saturated vapor line define the vapor bubble. These two lines connect at, what is termed, the critical point. Saturated mixtures exist only under the vapor bubble. For pressures and temperatures outside of the vapor bubble, the fluid exists as a single phase and the properties of that fluid, such as density, enthalpy, internal energy, etc., are uniquely defined by the pressure and temperature. For common fluids, such as water, these properties are tabulated as functions of pressure and temperatures and are available through a variety of references ~~including a website hosted by NIST (ref: http://webbook.nist.gov/chemistry/fluid/)~~.

Please delete the paragraph beginning at p. 3, line 28, which starts with "According to the present invention,", replace with the following two new paragraphs:

According to the present invention, an apparatus is provided for measuring the composition of a mixture flowing through a pipe. The apparatus includes an ultrasonic sensor apparatus disposed along the pipe that transmits an ultrasonic signal through the mixture and receives the ultrasonic signal. The ultrasonic sensor apparatus provides a measured signal indicative of the transit time of the ultrasonic signal through the mixture, wherein the mixture includes particles suspended within a fluid. A processor, responsive to said measured signal, determines the speed of sound propagating through the mixture. The processor, responsive to the speed of sound, also determines an output signal indicative of the composition of the mixture flowing through the pipe using a dispersion model.

According to another embodiment of the present invention, a method for measuring the composition of a mixture in a pipe is provided. The method includes measuring the transit time of an ultrasonic signal propagating through the mixture, wherein the mixture includes particles

suspended within a fluid. The method further includes determining the composition of the mixture by determining the speed of sound propagating through the mixture in response to the measured transit time, and using a dispersion model.